UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 29, 2020

Ms. Cheryl A. Gayheart
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
3535 Colonnade Parkway
Birmingham, AL 35243

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2; EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2; AND VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2, ISSUANCE OF AMENDMENTS REGARDING REVISION TO TECHNICAL SPECIFICATIONS TO ADOPT TSTF-563, REVISION 0, "REVISE INSTRUMENT TESTING DEFINITIONS TO INCORPORATE THE SURVEILLANCE FREQUENCY CONTROL PROGRAM" (EPID L-2019-LLA-0150)

Dear Ms. Gayheart:

The U. S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 226 to Renewed Facility Operating License No. NPF-2 and Amendment No. 223 to Renewed Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2, respectively; Amendment No. 303 to Renewed Facility Operating License No. DPR-57 and Amendment No. 248 to Renewed Facility Operating License No. NPF-5 for the Edwin I. Hatch Nuclear Plant (Hatch), Unit Nos 1 and 2, respectively; and Amendment No. 201 to Renewed Facility Operating License NPF-68 and Amendment No. 184 to Renewed Facility Operating License NPF-81 for the Vogtle Electric Generating Plant (Vogtle), Units 1 and 2, respectively. The amendments consist of changes to the License and Technical Specifications (TSs) in response to your application dated July 15, 2019.

The amendments adopt TSTF-563, Revision 0, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program." TSTF-563, Revision 0, revises the TS definitions of Channel Calibration and Channel Functional Test in the Hatch TS, and the definitions of Channel Calibration, Channel Operational Test (COT), and Trip Actuating Device Operational Test (TADOT) in the Farley and Vogtle TSs. The Hatch, Farley, and Vogtle Channel Calibration definition and the Hatch Channel Functional Test definition currently permit performance by means of any series of sequential, overlapping, or total channel steps. The Farley and Vogtle definitions of COT and TADOT are revised to explicitly permit performance by means of any series of sequential, overlapping, or total channel steps. The Channel Calibration, Channel Functional Test, COT, and TADOT definitions are revised to allow the required frequency for testing the components or devices in each step to be determined in accordance with the Surveillance Frequency Control Program.

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

John G. Lamb, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-348, 50-364, 50-321,
50-366, 50-424, and 50-425

Enclosures:
1. Amendment No. 226 to NPF-2
2. Amendment No. 223 to NPF-8
3. Amendment No. 303 to DPR-57
4. Amendment No. 248 to NPF-5
5. Amendment No. 201 to NPF-68
6. Amendment No. 184 to NPF-81
7. Safety Evaluation

cc: Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 226
Renewed License No. NPF-2

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated July 15, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-2 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 226, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 29, 2020

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 223
Renewed License No. NPF-8

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated July 15, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-8 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 223, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 29, 2020

ATTACHMENT

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

TO LICENSE AMENDMENT NO. 226

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

TO LICENSE AMENDMENT NO. 223

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

Replace the following pages of the License and Appendix A Technical Specifications (TSs) with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove Pages	Insert Pages
License	License
License No. NPF-2, page 4	License No. NPF-2, page 4
License No. NPF-8, page 3	License No. NPF-8, page 3
TSs	TSs
1.1-1	1.1-1
1.1-2	1.1-2
1.1-3	1.1-3
1.1-4	1.1-4
1.1-6	1.1-6

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 226, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the Issuance of the renewed license or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the renewed license supported by a favorable evaluation by the Commission.

a. Southern Nuclear shall not operate the reactor in Operational Modes 1 and 2 with less than three reactor coolant pumps in operation.

b. Deleted per Amendment 13

c. Deleted per Amendment 2

d. Deleted per Amendment 2

e. Deleted per Amendment 152

Deleted per Amendment 2

f. Deleted per Amendment 158

g. Southern Nuclear shall maintain a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall include:

1) Identification of a sampling schedule for the critical parameters and control points for these parameters;

2) Identification of the procedures used to quantify parameters that are critical to control points;

3) Identification of process sampling points;

4) A procedure for the recording and management of data;

5) Procedures defining corrective actions for off control point chemistry conditions; and

(2) Alabama Power Company, pursuant to Section 103 of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess but not operate the facility at the designated location in Houston County, Alabama in accordance with the procedures and limitations set forth in this renewed license.

(3) Southern Nuclear, pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

(4) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(5) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproducts, source or special nuclear material without restriction to chemical or physical form for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(6) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporate below:

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at reactor core power levels not in excess of 2775 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 223 are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

(3) Delete per Amendment 144
(4) Delete per Amendment 149
(5) Delete per Amendment 144

1.0 USE AND APPLICATION

1.1 Definitions

----------NOTE----------
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known input. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, interlock, and trip functions. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION shall include an inplace cross calibration that compares the other sensing elements with the recently installed sensing element. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

1.1 Definitions

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Unit operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same committed effective dose equivalent (CEDE) as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The CEDE dose conversion factors used to determine the DOSE EQUIVALENT I-131 shall be performed using Table 2.1 of EPA Federal Guidance Report No. 11, 1988, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion."

1.1 Definitions

$\bar{E}$ — AVERAGE DISINTEGRATION ENERGY	$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank; 2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; or

(continued)

1.1 Definitions

LEAKAGE (continued)	3. Reactor Coolant System (RCS) LEAKAGE through a a steam generator (SG) to the Secondary System; b. Unidentified LEAKAGE All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE; c. Pressure Boundary LEAKAGE LEAKAGE (except SG LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.
MASTER RELAY TEST	A MASTER RELAY TEST shall consist of energizing each master relay and verifying the OPERABILITY of each relay. The MASTER RELAY TEST shall include a continuity check of each associated slave relay.
MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE — OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in Chapter 14, Initial Tests and Operation, of the FSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.

1.1 Definitions

SHUTDOWN MARGIN (SDM) (continued)	b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the hot zero power temperatures.
SLAVE RELAY TEST	A SLAVE RELAY TEST shall consist of energizing each slave relay and verifying the OPERABILITY of each slave relay. The SLAVE RELAY TEST shall include, as a minimum, a continuity check of associated testable actuation devices.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, and trip functions. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the required accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-321

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 303
Renewed License No. DPR-57

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit No. 1 (the facility) Renewed Facility Operating License No. DPR-57 filed by Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated July 15, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-57 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B); as revised through Amendment No. 303, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. DPR-57
and Technical Specifications

Date of Issuance: January 29, 2020

ATTACHMENT TO LICENSE AMENDMENT NO. 303

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 1

RENEWED FACILITY OPERATING LICENSE NO. DPR-57

DOCKET NO. 50-321

Replace the following pages of the License and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
License	License
License No. DPR-57, page 4	License No. DPR-57, page 4
TSs	TSs
1.1-1	1.1-1
1.1-2	1.1-2
1.1-3	1.1-3

for sample analysis or instrumentation calibration, or associated with radioactive apparatus or components

(6) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

(C) This renewed license shall be deemed to contain, and is subject to, the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 of Part 50, and Section 70.32 of Part 70; all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and the additional conditions[2] specified or incorporated below:

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at steady state reactor core power levels not in excess of 2804 megawatts thermal.

(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B); as revised through Amendment No. 303 are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

The Surveillance Requirement (SR) contained in the Technical Specifications and listed below, is not required to be performed immediately upon implementation of Amendment No. 195. The SR listed below shall be successfully demonstrated before the time and condition specified:

SR 3.8.1.18 shall be successfully demonstrated at its next regularly scheduled performance.

(3) Fire Protection

Southern Nuclear shall implement and maintain in effect all provisions of the fire protection program, which is referenced in the Updated Final Safety Analysis Report for the facility, as contained in the updated Fire Hazards Analysis and Fire Protection Program for the Edwin I. Hatch Nuclear Plant, Units 1 and 2, which was originally submitted by letter dated July 22, 1986. Southern Nuclear may make changes to the fire protection program without prior Commission approval only if the changes

1.0 USE AND APPLICATION

1.1 Definitions

----------NOTE----------
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the LHGRs for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

(continued)

1.1 Definitions (continued)

CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarm, interlock, display, and trip functions, and channel failure trips. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS: a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and b. Control rod movement, provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same Committed Effective Dose Equivalent as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Federal Guidance Report (FGR) 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1988.
DRAIN TIME	The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming: a. The water inventory above the TAF is divided by the limiting drain rate; b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths

(continued)

1.1 Definitions (continued)

DRAIN TIME (continued)

susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:

1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;

2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or

3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.

c. The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;

d. No additional draining events occur; and

e. Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

(continued)

UNITED STATES
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SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-366

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 248
Renewed License No. NPF-5

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit No. 2 (the facility) Renewed Facility Operating License No. NPF-5 filed by Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated July 15, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-5 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B); as revised through Amendment No. 248 are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. NPF-5
and Technical Specifications

Date of Issuance: January 29, 2020

ATTACHMENT TO LICENSE AMENDMENT NO. 248

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 2

RENEWED FACILITY OPERATING LICENSE NO. NPF-5

DOCKET NO. 50-366

Replace the following pages of the License and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
License	License
License No. NPF-5, page 4	License No. NPF-5, page 4
TSs	TSs
1.1-1	1.1-1
1.1-2	1.1-2
1.1-3	1.1-3

(6) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

(C) This renewed license shall be deemed to contain, and is subject to, the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 of Part 50, and Section 70.32 of Part 70; all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and the additional conditions[2] specified or incorporated below:

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at steady sate reactor core power levels not in excess of 2,804 megawatts thermal, in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B); as revised through Amendment No. 248 are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the issuance of the renewed license or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the license supported by a favorable evaluation by the Commission.

(a) Fire Protection

Southern Nuclear shall implement and maintain in effect all provisions of the fire protection program, which is referenced in the Updated Final Safety Analysis Report for the facility, as contained

[2] The original licensee authorized to possess, use, and operate the facility with Georgia Power Company (GPC). Consequently, certain historical references to GPC remain in certain license conditions.

1.0 USE AND APPLICATION

1.1 Definitions

----------NOTE----------
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the LHGRs for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

(continued)

1.1 Definitions (continued)

CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarm, interlock, display, and trip functions, and channel failure trips. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS: a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and b. Control rod movement, provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same Committed Effective Dose Equivalent as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Federal Guidance Report (FGR) 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1988.
DRAIN TIME	The DRAIN TIME is the limit it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming: a. The water inventory above the TAF is divided by the limiting drain rate; b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths

(continued)

1.1 Definitions (continued)

DRAIN TIME (continued)

susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:

1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;

2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or

3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.

c. The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;

d. No additional draining events occur; and

e. Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

(continued)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-424

VOGTLE ELECTRIC GENERATING PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 201
Renewed License No. NPF-68

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Vogtle Electric Generating Plant, Unit 1 (the facility) Renewed Facility Operating License No. NPF-68 filed by the Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated July 15, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-68 is hereby amended to read as follows:

   Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 201, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to License No. NPF-68
and the Technical Specifications

Date of Issuance: January 29, 2020

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-425

VOGTLE ELECTRIC GENERATING PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 184
Renewed License No. NPF-81

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Vogtle Electric Generating Plant, Unit 2 (the facility) Renewed Facility Operating License No. NPF-81 filed by the Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated July 15, 2019, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-81 is hereby amended to read as follows:

   Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 184, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to License No. NPF-81
and the Technical Specifications

Date of Issuance: January 29, 2020

ATTACHMENT

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

TO LICENSE AMENDMENT NO. 201

RENEWED FACILITY OPERATING LICENSE NO. NPF-68

DOCKET NO. 50-424

AND

TO LICENSE AMENDMENT NO. 184

RENEWED FACILITY OPERATING LICENSE NO. NPF-81

DOCKET NO. 50-425

Replace the following pages of the Licenses and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
License	License
License No. NPF-68, page 4	License No. NPF-68, page 4
License No. NPF-81, page 3	License No. NPF-81, page 3
TSs	TSs
1.1-1	1.1-1
1.1-2	1.1-2
1.1-6	1.1-6

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at reactor core power levels not in excess of 3625.6 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 201, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Southern Nuclear Operating Company shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident.

(4) Deleted

(5) Deleted

(6) Deleted

(7) Deleted

(8) Deleted

(9) Deleted

(10) Mitigation Strategy License Condition

The licensee shall develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

(a) Fire fighting response strategy with the following elements:
1. Pre-defined coordinated fire response strategy and guidance
2. Assessment of mutual aid fire fighting assets
3. Designated staging areas for equipment and materials
4. Command and control
5. Training and response personnel

(b) Operations to mitigate fuel damage considering the following:
1. Protection and use of personnel assets
2. Communications
3. Minimizing fire spread
4. Procedures for Implementing integrated fire response strategy
5. Identification of readily-available pre-staged equipment
6. Training on integrated fire response strategy

(2) Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia, pursuant to the Act and 10 CFR Part 50, to possess but not operate the facility at the designated location in Burke County, Georgia, in accordance with the procedures and limitations set forth in this license;

(3) Southern Nuclear, pursuant to the Act and 10 CFR Part 70, to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

(4) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40, and 70 to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(5) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components;

(6) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as my be produced by the operation of the facility authorized herein.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter 1 and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect, and is subject to the additional conditions specified or incorporated below.

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at reactor core power levels not in excess of 3625.6 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 184, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

The Surveillance requirements (SRs) contained in the Appendix A Technical Specifications and listed below are not required to be performed immediately upon implementation of Amendment No. 74. The SRs listed below shall be

1.0 USE AND APPLICATION

1.1 Definitions

---NOTE---
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known inputs. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, interlock, and trip functions. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

(continued)

1.1 Definitions (continued)

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or other reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Unit operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in EPA Federal Guidance Report No. 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," EPA-520/1-88-020, September 1988.

(continued)

1.1 Definitions (continued)

SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. However, with all RCCAs verified fully inserted by two independent means, it is not necessary to account for a stuck rod in the SDM calculation. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the hot zero power temperatures.
SLAVE RELAY TEST	A SLAVE RELAY TEST shall consist of energizing each slave relay and verifying the OPERABILITY of each slave relay. The SLAVE RELAY TEST shall include, as a minimum, a continuity check of associated testable actuation devices.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, and trip functions. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the required accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2

AMENDMENT NO. 226 TO RENEWED FACILITY OPERATING LICENSE NPF-2

AMENDMENT NO. 223 TO RENEWED FACILITY OPERATING LICENSE NPF-8

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

AMENDMENT NO. 303 TO RENEWED FACILITY OPERATING LICENSE DPR-57

AMENDMENT NO. 248 TO RENEWED FACILITY OPERATING LICENSE NPF-5

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

AMENDMENT NO. 201 TO RENEWED FACILITY OPERATING LICENSE NPF-68

AMENDMENT NO. 184 TO RENEWED FACILITY OPERATING LICENSE NPF-81

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

DOCKET NOS. 50-348, 50-364, 50-321, 50-366, 50-424, AND 50-425

1.0 INTRODUCTION

By application dated July 15, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19196A222), Southern Nuclear Operating Company (SNC, the licensee) submitted a license amendment request (LAR) for the Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2; Edwin I. Hatch Nuclear Plant (HNP), Units 1 and 2; and Vogtle Electric Generating Plant (VEGP), Units 1 and 2.

The amendments adopt Technical Specifications Task Force (TSTF) Traveler TSTF-563, Revision 0, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program," dated May 10, 2017 (ADAMS Accession No. ML17130A819). The U.S. Nuclear Regulatory Commission (NRC or the Commission) staff issued a final safety evaluation (SE) approving TSTF-563, Revision 0, on December 4, 2018 (ADAMS Accession No. ML18333A144).

TSTF-563 revises the TS definitions of Channel Calibration and Channel Functional Test in the HNP TS, and the definitions of Channel Calibration, Channel Operational Test (COT), and Trip Actuating Device Operational Test (TADOT) in the FNP and VEGP TSs. The HNP, FNP, and VEGP Channel Calibration definition and the HNP Channel Functional Test definition currently permit performance by means of any series of sequential, overlapping, or total channel steps. The FNP and VEGP definitions of COT and TADOT are revised to explicitly permit performance by means of any series of sequential, overlapping, or total channel steps. The Channel Calibration, Channel Functional Test, COT, and TADOT definitions are revised to allow the required frequency for testing the components or devices in each step to be determined in accordance with the Surveillance Frequency Control Program (SFCP).

A SFCP was incorporated into the HNP TS in a License Amendment Nos. 266 and 210, for HNP, Units 1 and 2, respectively, dated January 3, 2012 (ADAMS Accession No. ML11108A129).

A SFCP was incorporated into the FNP TS in License Amendment Nos. 185 and 180 for FNP, Units 1 and 2, respectively, dated July 18, 2011 (ADAMS Accession No. ML11167A226).

A SFCP was incorporated into the VEGP TS in License Amendment Nos. 158 and 140, for VEGP, Units 1 and 2, respectively, dated January 19, 2011 (ADAMS Accession No. ML102520083).

The licensee has proposed variations from the TS changes described in TSTF-563, Revision 0. The variations are described in Section 2.2.1 of this SE and are evaluated in Section 3.1.

2.0 REGULATORY EVALUATION

2.1 Description Of Surveillance Frequency Control Program And Instrument Testing

The TSs require that the surveillances for instrumentation channels are to be performed within the specified frequency, using any series of sequential, overlapping, or total channel steps. Prior amendments for HNP, Units 1 and 2; FNP, Units 1 and 2; and VEGP, Units 1 and 2 (ADAMS Accession Nos. ML11108A129, ML11167A226, and ML102520083, respectively), revised the TSs to relocate all periodic surveillance frequencies to licensee control. Changes to the relocated surveillance frequencies are made in accordance with the TS program referred to as the SFCP. The SFCP allows a new surveillance frequency to be determined for the channel, but that frequency must consider all components in the channel and applies to the entire channel.

A typical instrument channel consists of many different components, such as sensors, rack modules, and indicators. These components have different short-term and long-term performance (drift) characteristics, resulting in the potential for different calibration frequency requirements. Under the current TSs, the most limiting component calibration frequency for the channel must be chosen when a revised frequency is considered under the SFCP. As a result, all components that makeup a channel must be calibrated at a frequency equal to the channel component with the shortest (i.e., most frequent) surveillance frequency.

Some channel components, such as pressure transmitters, are very stable with respect to drift and could support a substantially longer calibration frequency than the other components in the channel. Currently, the surveillance requirements (SRs) in many plants are performed in steps (e.g., a pressure sensor or transmitter is calibrated during a refueling outage and the rack signal

conditioning modules are calibrated while operating at power). The proposed change extends this concept to permit the surveillance frequency of each step to be determined under the SFCP based on the component(s) surveilled in the step instead of all components in the channel. This will allow each component to be tested at the appropriate frequency based on the component's long-term performance characteristics.

Allowing an appropriate surveillance frequency for performing a channel calibration on each component or group of components could reduce radiation dose associated with in-place calibration of sensors, reduce wear on equipment, reduce unnecessary burden on plant staff, and reduce opportunities for calibration errors.

2.2 Proposed Changes To The Technical Specifications

Currently, the Channel Calibration and Channel Functional Test, COT, and TADOT may be performed by any series of sequential, overlapping or total channel steps. The proposed changes to the TS would revise the definitions of channel calibration and channel functional test, COT, and TADOT to indicate that each step must be performed within the most limiting frequency for the components included in that step by adding the phrase ", and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step" at the end of the last sentence of each definition.

The following paragraph denotes the changes to the channel calibration definition for HNP. Changes and additions are shown in *italics* with removals shown as strike-outs:

> ... The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, *and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step* ~~so that the entire channel is calibrated~~.

The following paragraph denotes the changes to the channel calibration definition for FNP. Changes are shown in *italics* with removals shown as strike-outs:

> ... The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, ~~calibrations~~ or total channel steps, *and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step* ~~so that the entire channel is calibrated~~.

The following paragraph denotes the changes to the channel calibration definition for VEGP. Changes are shown in *italics* with removals shown as strike-outs:

> ... The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, ~~calibrations~~ or total channel steps, *and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step* ~~so that the entire channel is calibrated~~.

The following paragraph denotes the changes to the channel functional test definition for HNP. Changes and additions are shown in *italics* with removals shown as strike-outs:

> ...The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps, ~~so that the entire channel is tested.~~ *and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.*

The following paragraph denotes the changes to the COT and TADOT definitions for FNP and VEGP. Changes are shown in italics:

> A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of required alarm, interlock, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the necessary range and accuracy. *The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.*
>
> A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, and trip functions. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. *The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.*

The various instrumentation functions in the TS require surveillances to verify the correct function of the instrument channel. The proposed change extends the definition of instrumentation channel components to permit the surveillance frequency of each step to be determined under the SFCP based on the component(s) surveilled in the step instead of all components in the channel. This will allow each component to be tested at the appropriate frequency based on the component's long-term performance characteristics.

The proposed changes in the definition for instrument testing would allow the licensee to control the frequency of associated components being tested in each step. The SR for the overall instrumentation channel remains unchanged. The proposed change has no effect on the design, fabrication, use, or methods of testing the instrumentation channels and will not affect the ability of the instrumentation to perform the functions assumed in the safety analysis. These instrumentation testing definitions state that, "[t]he [test type] may be performed by means of any series of sequential, overlapping, or total channel steps." The surveillance frequency of these subsets would be established based on the characteristics of the components in the step rather than the most limiting component characteristics in the entire channel. Each of these steps are evaluated in accordance with the SFCP.

2.2.1 Variations from TSTF-563, Revision 0

SNC is proposing the following variations from the TS changes described in TSTF-563 or the applicable parts of the NRC staff's safety evaluation for TSTF-563. The HNP, FNP, and VEGP TS contain requirements that differ from the Standard Technical Specifications (STS) on which TSTF-563 was based, but the variations are encompassed in the TSTF-563 justification.

From the letter dated July 15, 2019, SNC provided the following variations:

a) The HNP, Units 1 and 2, TS are different from Revision 4 of the Boiling Water Reactor (BWR)/4 STS (NUREG-1433) on which TSTF-563 is based. The definition of Channel Calibration has wording differences from the STS definition that do not change the intent. The HNP, Units 1 and 2, TS Channel Calibration definition states, "The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated." The STS states, "The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps." Elimination of the phrase "so that the entire channel is calibrated" in the proposed change has no effect because the definition previously states that the Channel Calibration must encompass the entire channel.

b) The HNP, Units 1 and 2, TS are different from Revision 4 of the BWR/4 STS (NUREG-1433) on which TSTF-563 is based. The definition of Channel Functional Test has wording differences from the STS definition that do not change the intent. The HNP, Units 1 and 2, TS Channel Functional Test definition states, "The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested." The STS states, "The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps." Elimination of the phrase "so that the entire channel is tested" in the proposed change has no effect because the definition previously describes the scope of the Channel Functional Test.

c) The FNP, Units 1 and 2, and VEGP, Units 1 and 2, TS are different from Revision 4 of the Westinghouse STS (NUREG-1431) on which TSTF-563 is based. The definition of Channel Calibration has wording differences from the STS definition that do not change the intent. The FNP and VEGP TS Channel Calibration definition states, "The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping calibrations or total channel steps so that the entire channel is calibrated." The STS states, "The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps." Elimination of the word "calibrations" and elimination of the phrase "so that the entire channel is Calibrated" in the proposed change has no effect because the definition previously states that the Channel Calibration must encompass the entire channel.

d) The FNP Units 1 and 2 and the VEGP Units 1 and 2 TS are different from Revision 4 of the Westinghouse STS (NUREG-1431) on which TSTF-563 is based. Unlike the definitions in the Westinghouse STS, the FNP and VEGP definitions of COT and TADOT do not include a statement that the tests may be performed by means of any series of sequential, overlapping, or total channel steps. This provision was added to the STS definitions of COT and TADOT by TSTF-205, Revision 3, "Revision of Channel Calibration, Channel Functional Test, and Related Definitions," which was approved by the NRC on January 13, 1999 (ADAMS Accession No. ML040570179), and incorporated into Revision 2 of NUREG-1431. TSTF-205, Revision 3, described the change:

> Other changes are made for consistency of the definitions between the [improved STS] ISTS NUREGs. The NUREG-1430 Channel Functional Test and NUREG-1431 Channel Operational Test definitions are modified to include the sentence, "The CHANNEL FUNCTIONAL (OPERATIONAL for NUREG-1431) TEST may be performed by means of any series of sequential, overlapping, or total channel steps." This allowance currently exists in the CEOG, BWR/4 and BWR/6 definitions of Channel Functional Test and is understood to apply to the BWOG and WOG definitions, although not stated. ... The changes proposed increase the consistency of the five NUREGs and are not intended to change the meaning or intent of the affected definitions. (emphasis added)

The addition of this sentence to the COT and TADOT definitions is necessary to adopt TSTF-563 and, as stated in TSTF-205, is understood to apply to the existing definitions, although not explicitly stated. Therefore, adding the sentence does not change the intent of the existing definitions and permits adoption of TSTF-563.

e) The traveler and Safety Evaluation discuss the applicable regulatory requirements and guidance, including the [Title 10 of the *Code of Federal Regulations* (10 CFR)] 10 CFR 50, Appendix A, General Design Criteria (GDC). HNP, Unit 2; FNP, Units 1 and 2; and VEGP, Units 1 and 2, were licensed to the 10 CFR 50, Appendix A, GDC.

HNP, Unit 1 was not licensed to the 10 CFR 50, Appendix A, GDC. HNP, Unit 1, was licensed to the applicable Atomic Energy Commission (AEC) preliminary general design criteria identified in *Federal Register*, 32 FR 10213, published July 11, 1967 (ADAMS Accession No. ML043310029). The applicable AEC proposed criteria were compared to the 10 CFR 50, Appendix A, GDC, as documented in the HNP, Unit 1, Updated Final Safety Analysis Report (UFSAR), Appendix F, "Conformance to the Atomic Energy Commission (AEC) Criteria," as discussed below.

TSTF-563 references 10 CFR 50, Appendix A, GDC 13, "Instrumentation and Control," which states:

> Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.

A design evaluation of GDC 13 is included in UFSAR Section F.3, "Evaluation with Respect to 1971 General Design Criteria."

TSTF-563 references 10 CFR 50, Appendix A, GDC 21, "Protection System Reliability and Testability," which states:

> The protection system shall be designed for high functional reliability and inservice testability commensurate with the safety functions to be performed. Redundancy and independence designed into the protection system shall be sufficient to assure that (1) no single failure results in loss of the protection function and (2) removal from service of any component or channel does not result in loss of the required minimum redundancy unless the acceptable reliability of operation of the protection system can be otherwise demonstrated. The protection system shall be designed to permit periodic testing of its functioning when the reactor is in operation, including a capability to test channels independently to determine failures and losses of redundancy that may have occurred.

A design evaluation of GDC 21 is included in UFSAR Section F.3, "Evaluation with Respect to 1971 General Design Criteria."

Following implementation of the proposed change, HNP, Unit 1, will remain in compliance with applicable AEC design criteria as described in the HNP, Unit 1, UFSAR. Therefore, this difference does not alter the conclusion that the proposed change is applicable to HNP, Unit 1.

2.3 Applicable Regulatory Requirements And Guidance

The regulation at 10 CFR 50.36(a)(1) requires each applicant for a license authorizing operation of a utilization facility to include in the application proposed TSs.

The regulation at 10 CFR 50.36(b) requires:

> Each license authorizing operation of a ...utilization facility ...will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to [10 CFR] 50.34 ["Contents of applications; technical information"]. The Commission may include such additional technical specifications as the Commission finds appropriate.

The categories of items required to be in the TS are provided in 10 CFR 50.36(c). One such category is SRs, which are defined in 10 CFR 50.36(c)(3) as "requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

The regulation at 10 CFR 50.36(c)(5) requires TS to include administrative controls, which "are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner."

A prior amendment revised and relocated most periodic surveillance frequencies to licensee control. Changes to the relocated surveillance frequencies are made in accordance with the SFCP. The SFCP requires that changes to the relocated frequencies be made in accordance with NRC staff approved topical report Nuclear Energy Institute (NEI) 04-10.

Topical report NEI 04-10 describes an evaluation process and a multi-disciplinary plant decision-making panel that considers the detailed evaluation of proposed surveillance frequency revisions. The evaluations are based on operating experience, test history, manufacturers' recommendations, codes and standards, and other deterministic factors, in conjunction with risk insights. The evaluation considers all components being tested by the SR. Process elements are included for determining the cumulative risk impact of the changes, updating the licensee's probabilistic risk assessment (PRA) models, and imposing corrective actions, if necessary, following implementation of a revised frequency.

The NRC staff's guidance for the review of TSs is in Chapter 16.0, "Technical Specifications," of NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition" (SRP), March 2010 (ADAMS Accession No. ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared STS for each of the LWR nuclear designs. Accordingly, the NRC staff's review includes consideration of whether the proposed changes are consistent with the applicable reference STS (i.e., the current STS), as modified by NRC-approved Travelers. In addition, the guidance states that comparing the change to previous STS can help clarify the TS's intent.

Regulatory Guide (RG) 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," dated May 2011 (ADAMS Accession No. ML100910006), describes an acceptable risk-informed approach for assessing the nature and impact of proposed permanent licensing basis changes by considering engineering issues and applying risk insights. This regulatory guide also provides risk acceptance guidelines for evaluating the results of such evaluations.

RG 1.177, Revision 1, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," dated May 2011 (ADAMS Accession No. ML100910008), describes an acceptable risk-informed approach specifically for assessing proposed TS changes.

RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," dated March 2009 (ADAMS Accession No. ML090410014), describes an acceptable approach for determining the technical adequacy of PRAs.

The NRC staff's guidance for evaluating the technical basis for proposed risk-informed changes is provided in SRP, Chapter 19, Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," dated June 2007 (ADAMS Accession No. ML071700658). The NRC staff's guidance on evaluating PRA technical adequacy is provided in SRP, Chapter 19, Section 19.1, Revision 3, "Determining the Technical Adequacy of Probabilistic Risk Assessment for Risk-Informed License Amendment Requests After Initial Fuel Load," dated September 2012 (ADAMS Accession No. ML12193A107). More specific guidance related to risk-informed TS changes is provided in SRP, Chapter 16, Section 16.1, Revision 1, "Risk-Informed Decision Making: Technical Specifications," dated March 2007 (ADAMS Accession No. ML070380228), which includes changes to surveillance test intervals (STIs) (i.e., surveillance frequencies) as part of risk-informed decision-making. Section 19.2 of the SRP references the same criteria as RG 1.177, Revision 1, and RG 1.174, Revision 2, and states that a risk-informed application should be evaluated to ensure that the proposed changes meet the following key principles:

- The proposed change meets the current regulations, unless it explicitly relates to a requested exemption or rule change.
- The proposed change is consistent with the defense-in-depth philosophy.
- The proposed change maintains sufficient safety margins.
- When proposed changes result in an increase in risk associated with core damage frequency or large early release frequency, the increase(s) should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.
- The impact of the proposed change should be monitored using performance measurement strategies.

The following STS apply to HNP, Units 1 and 2:

NUREG-1433, "Standard Technical Specifications, General Electric BWR/4 Plants," Volume 1, "Specifications," and Volume 2, "Bases," Revision 4.0, dated April 2012 (ADAMS Accession Nos. ML12104A192 and ML12104A193, respectively).

The following STS apply to FNP, Units 1 and 2; and VEGP, Units 1 and 2:

NUREG-1431, "Standard Technical Specifications, Westinghouse Plants," Volume 1, "Specifications," and Volume 2, "Bases," Revision 4.0, April 2012 (ADAMS Accession Nos. ML12100A222 and ML12100A228, respectively).

3.0 TECHNICAL EVALUATION

Revising the frequency of a Channel Calibration and Channel Functional Test in the HNP TSs and COT and TADOT in the FNP and VEGP TSs instrument channel surveillance under the SFCP requires assurance that component performance characteristics, such as drift between each test, will not result in undetected instrument errors that exceed the assumptions of the safety analysis and supporting instrument loop uncertainty calculations. These requirements are consistent with the methodology described in NEI 04-10, which is required by the SFCP. The SFCP does not permit changes to the TS Allowable Values or Nominal Trip Setpoints; but allows only the surveillance frequency to be changed when determined permissible by NEI 04-10. Therefore, prior to extending the test intervals for an instrument channel component or components associated with a given calibration step, the component performance characteristics must be evaluated to verify the Allowable Value or Nominal Trip Setpoint will still be valid and to establish a firm technical basis supporting the extension. In addition, each change must be reviewed by the licensee to ensure the applicable uncertainty allowances are conservative (bounding) (e.g., sensor drift, rack drift, indicator drift). Documentation to support the changes shall be retained per the guidance in NEI 04-10.

Five key safety principles that must be evaluated before changing any surveillance frequency are identified in Section 3.0 of NEI 04-10. Principle 3 requires confirmation of the maintenance of safety margins, which, in this case, includes performance of deterministic evaluations to verify preservation of instrumentation trip setpoint and indication safety margins.

The evaluation methodology specified in NEI 04-10 also requires consideration of common-cause failure effects and monitoring of the instrument channel component performance following the frequency change to ensure that channel performance is consistent with the analysis to support an extended frequency.

The method of evaluating a proposed surveillance frequency change is not dependent on the number of components in the channel. Each step needs to be evaluated to determine the acceptable surveillance frequency for that step. The proposed change to permit changing the surveillance frequency of channel component(s) does not affect the test method or evaluation method. The requirement to perform a Channel Calibration, Channel Functional Test, COT, or TADOT on the entire channel is not changed.

For example, an evaluation in accordance with NEI 04-10 may determine that a field sensor (e.g., a transmitter) should be calibrated every 48 months, the rack modules should be calibrated every 30 months, and the indicators should be calibrated every 24 months. Under the current TS requirements, all devices in the channel must be calibrated every 24 months. However, under the proposed change, sensors, rack modules, and indicators would be calibrated at the appropriate frequency for the tested devices. As required by the Channel Calibration definition, the test would still encompass all devices in the channel required for channel operability.

The NEI 04-10 methodology is used to evaluate surveillance frequency changes to determine if SR extensions could be applied. Process elements are used to determine the cumulative risk impact of changes, updating the PRA, and imposition of corrective actions, if needed, following implementation. Several steps are required by NEI 04-10, Step 7, to be evaluated prior to determining the acceptability of changes. These steps include reviewing the history of surveillance tests, industry and plant specific history, impact on defense-in-depth, vendor recommendations, required test frequencies for the applicable codes and standards, ensuring

that plant licensing basis would not be invalidated and other factors. The NRC staff finds these measures acceptable in determining SR extensions.

In addition, Step 16 of Section 4.0 of NEI 04-10 requires an Independent Decisionmaking Panel (IDP) to review the cumulative impact of all Surveillance Test Interval (STI) changes over a period of time. This is also required by RGs 1.174 and 1.177. The IDP is composed of the site Maintenance Rule Expert Panel, Surveillance Test Coordinator, and Subject Matter Expert who is a cognizant system manager or component engineer. Based on the above information, the NRC staff finds that the setpoint changes will be tracked in an acceptable manner.

Licensees with an SFCP may currently revise the surveillance frequency of instrumentation channels. The testing of these channels may be performed by means of any series, sequential, overlapping, or total channel steps. However, all required components in the instrumentation channel must be tested in order for the entire channel to be considered Operable.

The NRC staff notes that industry practice is to perform instrument channel surveillances, such as Channel Calibrations and Channel Functional Tests, using separate procedures based on the location of the components. Each of these procedures may be considered a "step." The results of all these procedures are used to satisfy the SR using the existing allowance to perform it "by means of any series of sequential, overlapping, or total channel steps." The proposed changes would allow for determining an acceptable surveillance frequency for each step.

The NRC staff notes that the NEI 04-10 methodology includes the determination of whether the structures, systems, and components (SSCs) affected by a proposed change to a surveillance frequency are modeled in the PRA. Where the SSC is directly or implicitly modeled, a quantitative evaluation of the risk impact may be carried out. The methodology adjusts the failure probability of the impacted SSCs based on the proposed change to the surveillance frequency. Where the SSC is not modeled in the PRA, bounding analyses are performed to characterize the impact of the proposed change to the surveillance frequency. Potential impacts on the risk analyses due to screening criteria and truncation levels are addressed by the requirements for PRA technical adequacy, consistent with the guidance contained in RG 1.200, and by sensitivity studies identified in NEI 04-10.

The licensee is not proposing to change the methodology, or the acceptance criteria for extending STIs, and licensees will need to make changes in the frequency for performing each of the steps in the instrumentation surveillance test per the methodology in NEI 04-10.

Therefore, the NRC staff concludes that the proposed change to determine an acceptable test frequency for individual steps within instrumentation channel surveillance tests is acceptable because any extended STIs will be developed within the constraints of the SFCP and NEI 04-10.

The regulatory requirements in 10 CFR 50.36 are not specific regarding the frequency of performing surveillance tests. The proposed change only affects the frequency of performance and does not affect the surveillance testing method or acceptance criteria. Therefore, the proposed change is consistent with the surveillance testing requirements of 10 CFR 50.36.

PRA Acceptability

The guidance in RG 1.200 states that the quality of a licensee's PRA should be commensurate with the safety significance of the proposed TS change and the role the PRA plays in justifying the change. That is, the greater the change in risk or the greater the uncertainty in that risk as a result of the requested TS change, or both, the more rigor that should go into ensuring the quality of the PRA.

The NRC staff will have performed an assessment of the PRA models used to support the approved SFCP that uses NEI 04-10, using the guidance of RG 1.200 to assure that the PRA models are capable of determining the change in risk due to changes to surveillance frequencies of SSCs, using plant-specific data and models. Capability Category II of the NRC-endorsed PRA standard is the target capability level for supporting requirements for the internal events PRA for this application. Any identified deficiencies to those requirements are assessed further to determine any impacts to proposed decreases to surveillance frequencies, including the use of sensitivity studies where appropriate, in accordance with NEI 04-10.

The SFCP permits revision of the surveillance frequency for instrumentation channels. The NRC staff evaluated whether NEI 04-10 can be applied to subsets in an instrument channel when the SFCP currently specifies a surveillance interval that is applied to the entire channel. The NRC staff notes that the current channel surveillance may be performed by means of any series of sequential, overlapping, or total channel steps. In practice, this means that a channel is divided into subsets and each subset is tested separately. Therefore, the current instrument channel testing is already composed of a sequence of individual tests.

The instrument function may be modeled in the PRA differently depending on the site and the function (e.g., a channel may be modeled individually, subsets may be modeled separately, or the channel function may be modeled as a single entity). There are different steps through the evaluation methodology in NEI 04-10 that could be used based on the different PRA modeling approaches. The appropriate modeling of these different approaches is included in the NRC staff's review of PRA modeling during the review of a licensee's application to implement an SFCP that uses NEI 04-10.

Here, the licensee is using a PRA that was used to support the HNP, FNP, and VEGP applications to implement an SFCP that uses NEI 04-10. The NRC staff previously reviewed and approved those applications, as stated in Section 1.0 of this SE. The current amendment will allow the licensee to change the surveillance frequency of each subset of a channel, instead of having to change the surveillance frequency of an entire channel. The NRC staff finds that changes to the surveillance frequency caused by defining and using individual, testable component subsets can be appropriately evaluated with the current SFCP and the current PRAs. The NRC staff finds that the risk-informed methodology review and the PRA acceptability review that was performed during the review of the licensee's application to implement an SFCP that uses NEI 04-10 is adequate.

The NRC staff determined that the proposed changes to the TSs meet the standards for TSs in 10 CFR 50.36(b). The regulations at 10 CFR 50.36 require that TSs include items in specified categories, including SRs. The proposed changes modify the definitions applicable to instrumentation channel components but do not alter the technical approach that was approved by the NRC in its approval of NEI 04-10, and the TSs, as revised, continue to specify the

appropriate SRs for tests and inspections to ensure the necessary quality of affected SSCs is maintained.
Additionally, the changes to the TSs were reviewed and found to be technically clear and consistent with customary terminology and format in accordance with SRP Chapter 16.0. The NRC staff reviewed the proposed changes against the regulations and concludes that the changes continue to meet the requirements of 10 CFR Sections 50.36(b), 50.36(c)(3), and 50.36(c)(5), for the reasons discussed above, and thus provide reasonable assurance that with the adoption of these TSs, affected SSCs will have the requisite requirements and controls to operate safely. Therefore, the NRC staff concludes that the proposed TS changes are acceptable.

3.1 Variations From TSTF-563

The licensee described variations from TSTF-563 in Section 2.2 of the LAR, and as discussed in Section 2.2.1 of this safety evaluation. The licensee provided justification for the proposed variations and exceptions. The NRC staff reviewed the justifications and concluded the variations are acceptable for the following reasons.

The HNP, Units 1 and 2, TS are different from Revision 4 of the (BWR)/4 STS (NUREG-1433) on which TSTF-563 is based. The definition of Channel Calibration and Channel Functional Test has wording differences from the STS definition that do not change the intent. Elimination of the phrase "so that the entire channel is calibrated" in the proposed change has no effect, because the definition previously states that the Channel Calibration must encompass the entire channel. Elimination of the phrase "so that the entire channel is calibrated" in the proposed change of the definition of Channel Functional Test has no effect, because the definition previously describes the scope. These changes do not affect the applicability of TSTF-563 or the NRC staff's SE of TSTF-563 to HNP, Units 1 and 2 TSs, and is, therefore, acceptable.

The FNP, Units 1 and 2; and VEGP, Units 1 and 2, TS are different from Revision 4 of the Westinghouse STS (NUREG-1431) on which TSTF-563 is based. The definition of Channel Calibration has wording differences from the STS definition that do not change the intent. Elimination of the word "calibrations" and elimination of the phrase "so that the entire channel is Calibrated" in the proposed change has no effect, because the definition previously states that the Channel Calibration must encompass the entire channel. This change does not affect the applicability of TSTF-563 or the NRC staff's SE to FNP, Units 1 and 2; and VEGP, Units 1 and 2, and is, therefore, acceptable.

The FNP, Units 1 and 2; and the VEGP, Units 1 and 2, TS are different from Revision 4 of the Westinghouse STS (NUREG-1431) on which TSTF-563 is based. Unlike the definitions in the Westinghouse STS, the FNP and VEGP definitions of COT and TADOT do not include a statement that the tests may be performed by means of any series of sequential, overlapping, or total channel steps. This provision was added to the STS definitions of COT and TADOT by TSTF-205-A, Revision 3, "Revision of Channel Calibration, Channel Functional Test, and Related Definitions," which was approved by the NRC on January 13, 1999 and incorporated into Revision 2 of NUREG-1431. The addition of the sentence to the COT and TADOT definitions is necessary to adopt TSTF-563, and is a conforming change consistent with TSTF-205. Adding the sentence does not change the intent of the existing definitions and permits adoption of TSTF-563. This addition does not change the applicability of TSTF-563 or the NRC staff's SE of TSTF-563, and is, therefore, acceptable.

The traveler and SE discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, GDC. HNP, Unit 1, was not licensed to the 10 CFR 50, Appendix A, GDC, but was licensed to the applicable AEC proposed general design criteria identified in *Federal Register* 32 FR 10213, published July 11, 1967. The applicable AEC proposed criteria were compared to the 10 CFR 50, Appendix A, GDC, as documented in the HNP, Unit 1, UFSAR, Appendix F, "Conformance to Atomic Energy Commission (AEC) Criteria." Following implementation of the proposed change, HNP, Unit 1, will remain in compliance with applicable AEC design criteria as described in the HNP, Unit 1, UFSAR. This difference does not affect the applicability of TSTF-563 or the NRC staff's SE of TSTF-563 to the HNP, Unit 1, and is, therefore, acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Georgia State official was notified on October 2, 2019, of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration (84 FR 45547 dated August 29, 2019), and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Tarico Sweat, NRR/DSS
John G. Lamb, NRR/DORL

Date: January 29, 2020

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2; EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2; AND VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2, ISSUANCE OF AMENDMENTS REGARDING REVISION TO TECHNICAL SPECIFICATIONS TO ADOPT TSTF-563, "REVISE INSTRUMENT TESTING DEFINITIONS TO INCORPOATE THE SURVEILLANCE FREQUENCY CONTROL PROGRAM" (EPID L-2019-LLA-0150) DATED JANUARY 29, 2020

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